

IN THE CLAIMS

Claims 1-15 (canceled).

16. (new) A method of measuring stress forces in refiners including a pair of refining discs juxtaposed with each other and forming a refining gap for refining material therebetween, said pair of refining discs including at least one refining surface including a plurality of bars for refining said material within said refining gap, said at least one refining surface including a measuring surface comprising a predetermined portion of said at least one refining surface including at least a portion of at least a pair of said plurality of bars, said method comprising resiliently mounting said measuring surface in said at least one refining surface and measuring said stress forces directed perpendicular to said measuring surface.

17. (new) The method of claim 16 wherein said measuring comprises measuring both said perpendicular forces comprising the force exerted by steam pressure at said measuring surface and the force exerted by fiber pressure from said refining material.

18. (new) The method of claim 16 wherein said measuring comprises measuring only said force exerted perpendicular to said measuring surface by fiber pressure from said refining material and compensating for the force exerted by steam pressure at said measuring surface.

19. (new) The method of claim 18 wherein said compensating for said force exerted by steam pressure at said measuring surface comprises measuring the temperature of said steam at said measuring surface and calculating the force exerted by said steam pressure at said measuring surface based on said measured steam temperature.

20. (new) The method of claim 18 wherein said measuring comprises disposing force sensors in connection with said measuring surface and permitting said steam pressure to

influence said force sensors in both the direction of said measuring surface and the opposite direction to thereby compensate for said steam pressure.

21. (new) Apparatus for measuring stress forces in refiners including a pair of refining discs juxtaposed with each other and forming a refining gap for refining material therebetween, said pair of refining discs including at least one refining surface including a plurality of bars for refining said material within said refining gap, stress measuring means for measuring the stress force over a measuring surface comprising a predetermined portion of said at least one refining surface comprising at least a portion of at least a pair of said plurality of bars, said stress measuring means being resiliently mounted in said at least one refining surface, and including stress measuring members for measuring said forces directed perpendicular to said measuring surface.

22. (new) The apparatus of claim 21 wherein said stress measuring means is removably disposed in said at least one refining surface perpendicular to said measuring surface and said stress measuring members comprise at least a pair of force sensors and a first body connecting said at least a pair of force sensors to said measuring surface.

23. (new) The apparatus of claim 22 wherein said at least a pair of force sensors are disposed to provide counter-directed readings when said measuring surface is influenced by a stress force.

24. (new) The apparatus of claim 21 wherein said stress measuring members are disposed to measure the perpendicular force exerted by both steam pressure at said measuring surface and the fiber pressure exerted by said refining material.

25. (new) The apparatus of claim 21 wherein said stress measuring members are disposed to measure the

perpendicular force exerted only by said fiber pressure exerted by said refining material and including means for compensating for the steam pressure at said measuring surface.

26. (new) The apparatus of claim 25 wherein said means for compensating comprises temperature measuring means for measuring the temperature of said steam at said measuring surface whereby the steam pressure at said measuring surface can be calculated therefrom.

27. (new) The apparatus of claim 25 including pressure equalizing means for influencing said stress measuring means from both the direction of said measuring surface and the opposite direction.

28. (new) The apparatus of claim 21 wherein said stress measuring means comprises at least two plate-shaped force sensors.

29. (new) The apparatus of claim 22 wherein said at least a pair of force sensors comprises strain gauges.

30. (new) The apparatus of claim 22 wherein said at least a pair of force sensors comprises piezo-electric transducers.